

WHAT IS CLAIMED IS:

1. A method for controlling cooling/heating of a heat pump system, comprising the steps of:

5 (a) controlling a compressor so that a flow rate of a refrigerant is reduced when the heat pump system is switched from a cooling mode to a heating mode or from the heating mode to the cooling mode; and

10 (b) controlling a four-way valve so that a flow direction of the refrigerant is changed into an opposite direction when the flow rate of the refrigerant after the step (a) is reduced.

2. The method as set forth in claim 1,

15 wherein a power supply to the compressor is switched off in the step (a) so that the flow rate of the refrigerant is reduced.

3. The method as set forth in claim 2,

20 wherein a power supply to the compressor is switched on after the step (b).

4. The method as set forth in claim 1,

25 wherein the operation of the compressor is converted into a stage having a lower state than that of a stage at a point of

time when the heat pump system is switched from the cooling mode to the heating mode or from the heating mode to the cooling mode so that the flow rate of the refrigerant is reduced.

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5. The method as set forth in claim 4, further comprising the step of (c) controlling the compressor to re-operate in a normal state after the step (b).

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6. The method as set forth in claim 1,
wherein the four-way valve in the step (b) is controlled to convert the flow direction of the refrigerant into the opposite direction, in case that a designated time from the step (a) has elapsed.

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7. The method as set forth in claim 1,
wherein the four-way valve in the step (b) is controlled to convert the flow direction of the refrigerant into the opposite direction, in case that the flow rate of the
20 refrigerant is reduced to less than a designated rate.

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8. The method as set forth in claim 1,
wherein the four-way valve in the step (b) is controlled to convert the flow direction of the refrigerant into the
opposite direction, in case that the flow rate of the

refrigerant reaches zero (0).

9. The method as set forth in claim 1,

wherein the four-way valve in the step (b) is controlled
5 such that power is supplied to the four-way valve when the heat
pump system is switched from the cooling mode to the heating
mode, and a power supply to the four-way valve is cut off when
the heat pump system is switched from the heating mode to the
cooling mode.

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10. A method for controlling cooling/heating of a heat
pump system comprising the steps of:

(a) stopping a compressor when the heat pump system is
switched from a cooling mode to a heating mode or from the
15 heating mode to the cooling mode;

(b) operating a four-way valve so as to convert a flow
direction of the refrigerant after a designated time from the
stoppage of the compressor in the step (a) elapses; and

(c) re-operating the compressor after the step (b).